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| Module | **Lessons** | **Vocab and Tools** | **Standards** |
| Ratios, Proportions & Percents (Module 1&4)  Ratio, Proportion & Percent (Module 1&4) | (Module 1)  1: An Experience in Relationships as Measuring Rates  2: Proportional Relationships  3: Identifying Proportional and Non-Proportional Relationships in Tables  4: Identifying Proportional and Non-Proportional Relationships in Tables  5: Identifying Proportional and Non-Proportional Relationships in Graphs  6: Identifying Proportional and Non-Proportional Relationships in Graphs  7: Unit Rate as the Constant of Proportionality  8: Representing Proportional Relationships with Equations  9: Representing Proportional Relationships with Equations  10: Interpreting Graphs of Proportional Relationships  **Assessment A**  11:Ratios of Fractions and Their Unit Rates  12: Ratios of Fractions and Their Unit Rates  13: Finding Equivalent Ratios Given the Total Quantity  14: Multi-Step Ratio Problems  15: Equations of Graphs of Proportional Relationships Involving Fractions  16: Relating Scale Drawings to Ratios and Rates  17: The Unit Rate as the Scale Factor  18: Computing Actual Lengths from a Scale Drawing  19: Computing Actual Areas from a Scale Drawing  21&22: Changing Scales  **Assessment B**  (Module 4)  1: Percent  2: Part of a Whole as a Percent  3: Comparing Quantities with Percent  4: Percent Increase and Decrease  5: Finding One Hundred Percent Given Another Percent  6: Fluency with Percents  7: Markup and Markdown Problems  8: Percent Error  10: Simple Interest  11: Tax, Commissions, Fees and Other Real World Percent Problems  16: Population Problems  14: Computing Actual Lengths from a Scale Drawing  **Assessment C** | New or Recently Introduced Terms  **Proportional To** (Measures of one type of quantity are *proportional to* measures of a second type of quantity if there is a number so that for every measure of a quantity of the first type the corresponding measure of a quantity of the second type is given by , i.e., *.)*  **Proportional Relationship** (A one-to-one matching between two types of quantities such that the measures of quantities of the first type are proportional to the measures of quantities of the second type.)  **Constant of Proportionality** (If a proportional relationship is described by the set of ordered pairs that satisfies the equation , where is a positive constant, then is called the *constant of proportionality*. For example,if the ratio of to is to , then the constant of proportionality is and *.*)  **One-to- One Correspondence** (Two figures in the plane, and , are said to be in one-to-one correspondence if there is a pairing between the points in and , so that each point of is paired with one and only one point in , and likewise, each point in is paired with one and only one point in .)  **Scale Drawing and Scale Factor[[1]](#footnote-1)** (For two figures in the plane, and , is said to be a *scale drawing* of with *scale factor* if there exists a one-to-one correspondence between and so that under the pairing of this one-to-one correspondence, the distance between any two points and of is related to the distance between corresponding points and of by .)  Familiar Terms and Symbols[[2]](#footnote-2)  Ratio  Rate  Unit Rate  Equivalent Ratio  Ratio Table  **Suggested Tools and Representations**  Ratio Table (See example below)  Coordinate Plane (See example below)  Equations of the form  *Flour*  *Sugar*  *Ratio Table*  *Coordinate Plane* | 7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction ½ / ¼ miles per hour, equivalently 2 miles per hour.*  7.RP.A.2 Recognize and represent proportional relationships between quantities.   1. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. 2. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. 3. Represent proportional relationships by equations. *For example, if total cost, t, is proportional to the number, n, of items purchased at a constant price, p, the relationship between the total cost and the number of items can be expressed as t = pn.* 4. Explain what a point *(x,y)* on the graph of a proportional relationship means in terms of the situation, with special attention to the points *(0,0)* and *(1,r)*, where *r* is the unit rate.   7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*  7.EE.B.4[[3]](#footnote-3) Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.  a. Solve word problems leading to equations of the form *px + q = r* and *p(x + q) = r*, where *p*, *q*, and *r* are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*  7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.  7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making an hour gets a raise, she will make an additional of her salary an hour, or , for a new salary of . If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about inches from each edge; this estimate can be used as a check on the exact computation*.  7.G.A.1**[[4]](#footnote-4)** Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. |

1. These terms will be formally defined in Grade 8. A description is provided in Grade 7. [↑](#footnote-ref-1)
2. These are terms and symbols students have seen previously. [↑](#footnote-ref-2)
3. In this module, the equations are derived from ratio problems. 7.EE.B.4a is returned to in Modules 2 and 3. [↑](#footnote-ref-3)
4. 7.G.A.1 is introduced in Module 1. The balance of this cluster is taught in Module 6. [↑](#footnote-ref-4)